4 Analysis of Aggregated Survey Results

Results of the survey are discussed in the following two sections of the report. In this first section, discussion focuses upon the results of the descriptive statistical analysis that was undertaken for all survey items. It provides an overall demographic profile of people using the National Recreation Area, together with frequencies and cross tabs for each survey question. Data were also analyzed to ascertain the temporal and spatial distribution of visitors – how many visitors went to specific places within the park at particular times of the day, and certain days of the week. We discuss these results and then turn to an examination of statistics for the different types of trail users.

In the next section of the report (***section 5***) the survey data is considered based upon a geographic analysis of trail function within the SMMNRA (neighborhood vs. destination sites) and trailhead location within the SMMNRA (eastern versus western sites). Data are also examined based upon trail users' activities (e.g. horseback-riding, mountain biking or hiking).

General Overview of Results

The survey data is discussed under six broad topical headings, reflecting the terms of reference for the survey. These are: (i) user demographics, (ii) user activities, (iii) user knowledge of flora and fauna, (iv) user group interactions, (v) travel behavior and (vi) barriers to access. The demographic characteristics of trail users are partitioned by age, sex, nationality, languages spoken at home, race, income, education, home ownership and household composition. Prior to a discussion of the results however, it is useful to briefly examine the limitations of the survey.

Limitations of the survey

Several weaknesses of survey instrument design emerged following completion of the survey. A small number of items suffered from some ambiguity or a tendency for respondents to fail to follow written instructions. For example, the question about local park use (Q6a) elicited responses based on actual practice, as well as hypothetical conclusions about why respondents would or would not, in theory, use local parks. In addition some respondents were confused about what constitutes a "local park" versus which sites are within the National Recreation Area. The household composition item (Q18) confused some respondents. For others, the distinction between household types was ambiguous, especially for respondents unused to these categories. Even though race/ethnicity questions (Q21, 22) were designed to be consistent with US census items, they were met with some confusion, with most Hispanic/Latino respondents electing to leave the race question blank, suggesting that they may not have felt themselves to be adequately accounted for among the choices provided.

The question about knowledge of local flora and fauna (Q7), in contrast, raised the problem of eliciting both responses based on knowledge and those based on familiarity with more general information on natural habitat (acquired through National Geographic

and Discovery Channel programming, for example) as well as specific knowledge about the flora and fauna of the SMMNRA. Also although respondents were forced to choose either conservation or recreation as primary reasons for protecting the Santa Monica Mountains (Q8), many ignored the directions and ticked both categories. Lastly, many respondents when answering the question on user impacts (Q9) said that they were not affected by other users. They then ignored the skip prompt and proceeded to answer Q9b, which inquired how they were affected, oftentimes detailing substantial impacts. Another problem with this item was that some respondents seemed to be answering the question not on the basis of how they were personally impacted by other users, but instead what their opinion of other users was in regard to trail use. Future questions on this issue of user conflict should be designed to enable respondents to identify what aspect of each use group impacted upon them.

Finally, it is necessary to add a word or caution with regard to interpreting results where the sample size is less than 30, as attempts to draw statistical inferences from such small samples will be prone to erroneous conclusions (Littlejohn, 1993: 3).

Aggregate Analysis of the Survey Results

The following discussion assesses the overall survey data. We commence by briefly statistically profiling the "typical" park user, before considering overall park user demographic information. For ease of interpretation, our discussion addresses broad categories of survey responses rather than examining each question in detail. As mentioned earlier in the report, the survey sample consists of 912 responses. All frequency statistics for survey data are presented in tabular form, aggregated by question, in ***Appendix 2***. User group statistics are tabulated in ***Appendices 3-5.*** *It is important to note that the sample size may vary for some of the survey questions as not all respondents answered all of the questions.* Where this occurred, it is indicated by the symbol "n=" and then a number showing the sample population for the question.

The survey results indicate that the type of visitor most frequently represented in visitor statistics for the SMMNRA was white (72%), male (59.3%), middle aged (median age was 40yrs), born in the United States (77.3%), English-speaking (86.6%), college - educated (85.6%), relatively affluent - owned his own home (63.1%), earned between $50, 000 and $75, 000 per annum, did not have children under 18 years of age (70.7%), lived in a single household (33%), visited the SMMNRA with friends (34.6%) and was a return visitor (87%).

Non-response data

Only limited information was collected for non-respondents. This included their sex, the number of adults, children under 18 and animals in the group, and the type of user. The majority of non-respondents were male (60.3%), largely reflecting the sex ratio of the overall survey sample. This information is presented in ***Table 1*** and ***Figure 2*** below. The number of people within groups that did not respond to the survey was 746. They were accompanied by 36 companion animals and 220 children.

Table 1 Non-respondent activities

Non-respondent trail user activities			
Activity (N=242)	*%*	*Activity*	*%*
Sightseeing	5.37	Horseback riding	3.3
Hiking	52.48	Rock climbing	1.65
Picnicking	4.54	Painting / crafts	0
Mountain biking	15.28	Photographing	0
Bird watching	1.23	Sunbathing	0
Walking dog(s)	7.02	Wading swimming	0
Jogging	7.85	Other	0
Camping	0		

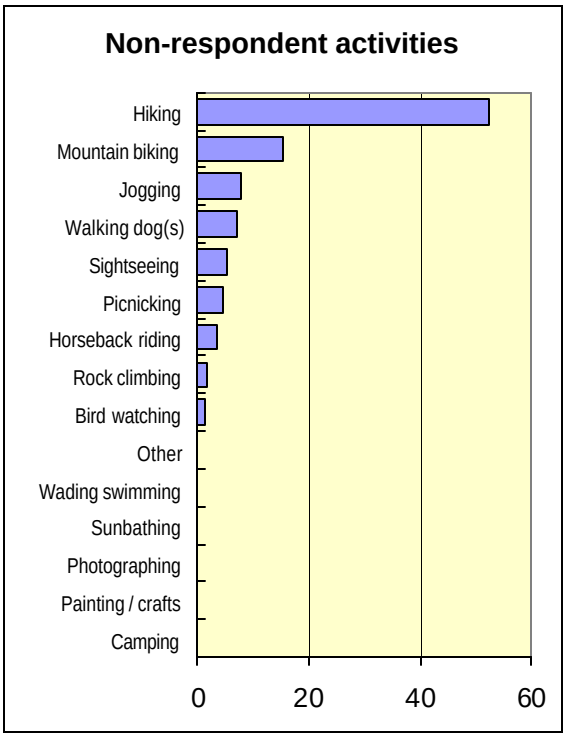

Figure 2 Non-respondent activities

Although the introduction above has statistically profiled the "typical" SMMNRA visitor, analysis of the survey sample reveals that a wide variety of people visit the SMMNRA. The demographic data for these visitors are now examined in greater detail.

Demographics

The survey collected a broad range of demographic data from trail users. These data included the respondent's age, sex and nationality, languages spoken at home, their race, income, education, home ownership status and their household composition.

Age

The median age of park users was 40. The youngest group visiting the SMMNRA was picnickers with a median age of 34.5 followed by sightseers (median age 37.6). The oldest group was equestrians with a median age of 46.1 followed by hikers (42.3). Mountain bikers (38.0), joggers (39.6), and dog walkers (39.8) were all somewhere in the middle.

Sex

Over half of visitors surveyed were male (59.3%). Women comprised 40.7% of the sample. This slightly skewed ratio is perhaps reflective of the high proportion of visitors pursuing adventure sports such as mountain biking, typically a male dominated sport – a trend reflected in the statistics revealing that 86.1% of mountain bikers surveyed being male. However, sightseers were also predominantly male (70.4%) whereas equestrians were mostly women; 80% of equestrians were female. These results are illustrated in ***Figure 3*** below.

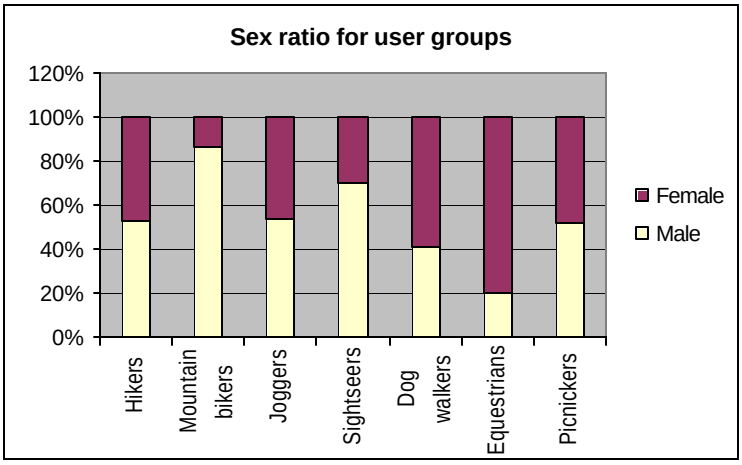

Figure 3 Comparison of sex ratios

Nationality

Most respondents were born in the United States (77.3%). Mexico (2.2%) was the second highest country of origin for respondents to the survey followed by Iran (1.6%), the Philippines (1.1%) and the United Kingdom (1%). The remainder of visitors (16.8%), were born in a wide range of other countries. In all, 56 different nations were represented by visitors to the SMMNRA.

For those visitors whose country of origin was not the United States, the median duration of residence in the United States was 20 years.

Language spoken at home

Most respondents spoke English at home. Other languages spoken at home included Spanish (7.8%), Farsi (1.8%) and French (1.3%). In ***Appendix 2***, it can be seen that there were a wide variety of other languages spoken at home, but these are statistically of low significance.

Race

Most of the respondents to the survey were white (72%; refer to ***Table 2*** and ***Figure 4*** below). Asian visitors comprised the next most frequently represented race, with 5.5% of respondents identifying themselves as Asian. Only 1.6% of SMMNRA visitors surveyed were Black or African-American and an even smaller percentage (1.3%) were American Indian or Alaskan natives. Native Hawaiians/Pacific Islanders were least represented in the sample, comprising only 0.5% of park visitors. It should be noted however, that a high proportion of respondents (17.3%) did not wish to answer the question about race. Perhaps this is indicative of some level of personal disaffection on the part of respondents regarding practices of differentiating between individuals based upon social constructs such as 'race'.

Insofar as user group breakdowns are concerned, analysis by racial composition yields some interesting results. For those respondents identifying themselves as Hispanic/Latino, the highest proportions of visitors to the SMMNRA were picnickers (52%) followed by dog walkers and sightseers (16.2% and 16.0% respectively). For respondents self-identifying as white, the highest proportion were in the equestrian group (86.7%) followed by joggers (79.5%). For black or African-American respondents, the highest percentages were in the dog-walking group (4.8%) followed by sightseers (1.9%). For Asian respondents, the highest percentages were mountain bikers (7.8%) followed by hikers (5.7%). Native Americans were generally poorly represented in the survey, but the highest proportion of respondents was the sightseeing group (3.7%) followed by joggers (2.7%). Finally, for Hawaiians / Pacific Islanders, who were also poorly represented in the survey, picnicking (4.0%) and jogging (1.4%) were the most popular activities.[7]

Table 2 Race of visitors to SMMNRA

Race (N=912)	%
White	72.0
Asian	5.5
African-American / Black	1.6
American Indian / Native Alaskan	1.3
Native Hawaiian / Pacific Islander	0.5
Did not want to answer	17.3
Total	**98.2**

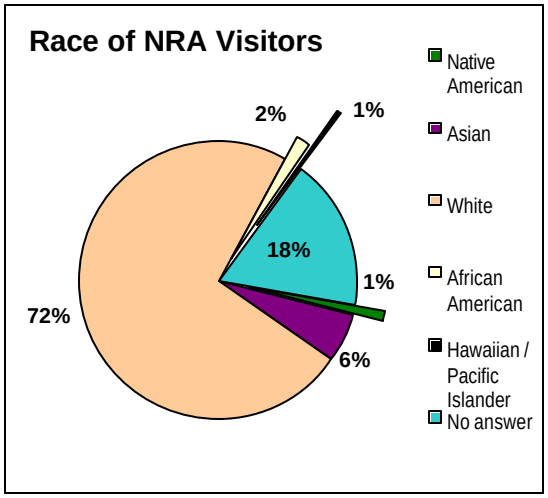

Figure 4 Race of visitors

[7] It should be noted that since respondents chose multiple categories for the trail use activity, percentages add up to greater than 100%.

Income

Most respondents were in the middle income bracket, with the highest percentage of park visitors earning between $50,000 to $75,000 per annum (18.6%), followed by those in the $25,000 to $50,000 bracket (15.7%), then those in the $75,000 to $100,000 bracket (14.7%). However, aggregating this data reveals that the majority of park visitors earned between $50,000 and $100,000 per annum (see ***Figure 5*** below). It should be noted that 10.4% of those surveyed did not wish to answer the question about household income.

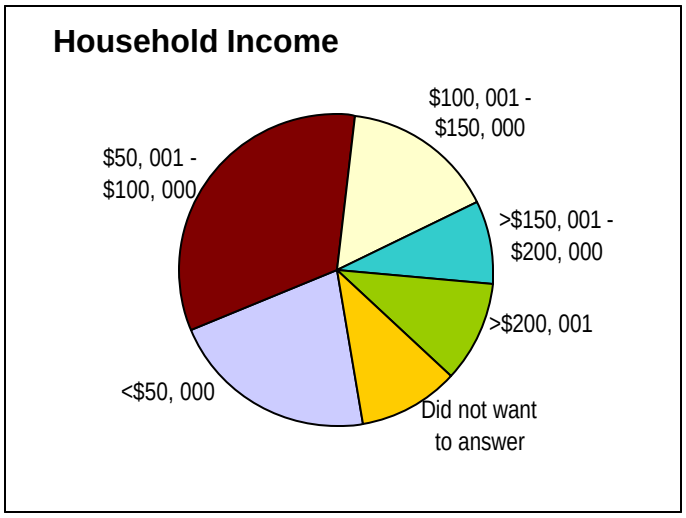

Figure 5 Household income

When income data are analyzed by user group, no distinctive pattern emerges. For mountain bikers, joggers and picnickers, the median income was in the $75,000 to $100,000 bracket. Hikers, sightseers and equestrians all had median incomes in the $50,000 to $75,000 bracket, and dog walkers had the lowest median income range ($25,000 to $50, 000).

Education

The majority of visitors to the National Recreation Area possessed a college level education. The second most frequently reported level of education was that of high school graduate, followed by high school student. Only a very small proportion of visitors to the SMMNRA (0.9%) did not have a high school diploma or GED (refer to ***Table 3*** and ***Figure 6*** below).

Table 3 Education level of visitors

Educational attainment (N=898)	%
High school student	5.8
No high school diploma or GED	0.9
High school graduate or GED	7.7
College	85.6
Total	**100**

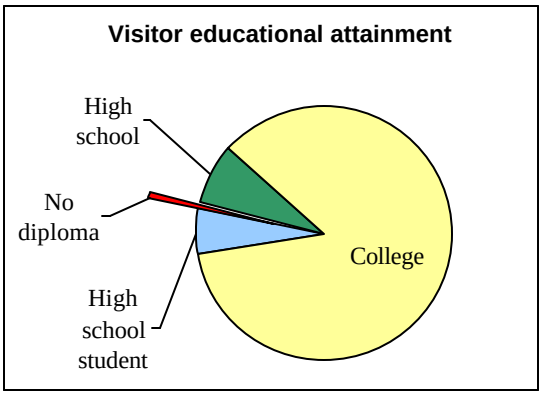

Figure 6 Education of trail users

When examined by group, the user group with the highest level of education was equestrians, with 100% of the group possessing a college degree. Hikers (89.6%) and then dog walkers (87.5%) were the groups with the next highest percentage of college graduates. Picnickers were the users with the smallest percentage of college graduates (68%), which is still relatively high. In comparison, the user group with the highest proportion of high school students was sightseers (15.1%).

Home ownership

Just over two-thirds (63.1%) of visitors to the SMMNRA were homeowners, with the balance renting their housing (36.9%; refer to ***Table 4*** below). The user groups with the highest percentage of homeowners were horseback riders (89.7%) followed by mountain bikers (75.3%) and dog walkers (61.5%). User groups with the highest percentage of renters were picnickers (59.3%) followed by sightseers (51.0%) and joggers (41.1%).

Table 4 Home ownership (overall)

Home ownership (N=891)	%
Owned	63.1
Rented	36.9
Total	**100**

Household composition

The majority of respondents live in single person household, followed by couples without children under 18, and then two parents with children under 18. Only 9.1% of respondents lived in households comprised of unrelated adults, but the lowest percentage of respondents (8.0%) lived in multi-generational households (*see* ***Table 5*** and ***Figure 7*** below).

Table 5 Household composition

Household composition (N=891)	%
Single	33.0
Unrelated adults	9.1
Couple without children under 18	26.0
Single parent with children under 18	4.7
Two parents with children under 18	19.2
Multigeneration household	8.0
Total	**100**

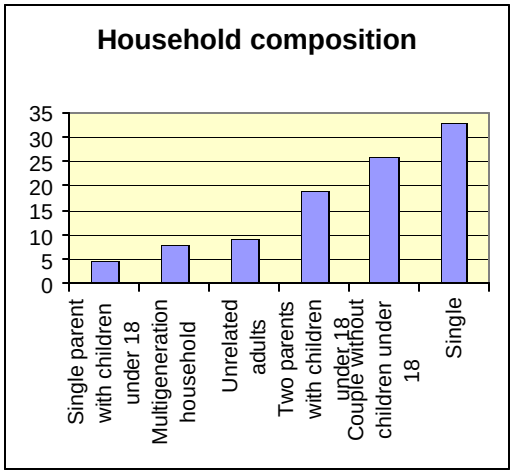

Figure 7 Household composition

As far as user group household composition is concerned, the group with the highest percentage of members who lived in single person households was sightseers (42%). The user group with the next highest percentage of single person households was hikers (35.4%). Those households with the highest percentage of unrelated adults were dog walkers (17.9%) and this user group also had the highest percentage of households comprised of couples without children under 18 (41%). The user group with the highest percentage of single parents with children under 18 was equestrians (10.3%) but this user group also had the highest percentage of households comprised of two parents with children under 18 (31%). They were followed by mountain bikers at 26.8%. The user group characterized by multigenerational households was picnickers at 20%. The next highest multi-generation household user group had only half this percentage - hikers at 9.7%.

Recreational Trail Use

If the demographic characteristics of visitors to the SMMNRA were not entirely unexpected, the results for park use are perhaps similarly unsurprising. Only thirteen percent of those surveyed were first time visitors with the majority (87%) being return visitors. The median time spent on trails was 2 hours and visitors on average visited the SMMNRA four times a month. The most popular time of day for visiting the SMMNRA was the morning (63.8%); the most popular time of the week was the weekend (72.5%), with the most popular seasons being summer (71%) and spring (62.6%).[8]

[8] It should be noted that percentages in these categories add up to more than 100% as respondents checked all categories that applied. It is also important to note that since the survey was conducted in the summer, there is the possibility that those respondents with a predilection for summer visits are over represented in the sample.

User visitation rates and patterns

The majority of visitors to the SMMNRA came either with friends (34.6%) or by themselves (29.3%). The next highest category was respondents visiting with family (25.4%) Very few visitors responded that they were visiting with clubs or organizations (see ***Appendix 2***). The median number of people in groups was 2 and out of the total sample, just over one third (395 people) were visiting with companion animals. When analyzed by user group, picnickers were the group that most often responded that they were visiting with an organization or club (28.0%). No group reported high rates of attendance for religious groups, educational groups or youth clubs. Joggers were most often accompanying family and friends (8%) and picnickers were most often visiting with family (52%). The highest percentage of dog-walkers visiting the SMMNRA were people who were by themselves (47.6%). On the other hand, mountain bikers were most often with their friends (49.1%) as were sightseers (42.6%). However, a high percentage of sightseers were also with their families (35.2%) as were hikers (28.3%).

User activities

Respondents to the National Recreation Area engaged in a wide variety of activities during their visit (refer to ***Table 6*** and ***Figure 8*** below). Hiking was the most popular of these activities with 77.3% of visitors stating that they had hiked or were intending to hike during their visit. Sightseeing was another popular activity with over half of the respondents surveyed engaging in this activity during their visit to the SMMNRA (55.0%). About a quarter of respondents participated in mountain biking and jogging, whilst other popular activities included picnicking, bird watching and walking dogs.[9]

There were some surprises with regard to recreational trail use activities. One of the most interesting findings of the survey is that equestrians were relatively poorly represented among trail users. Historically equestrians have been an active user group involved in many aspects of decision-making about the SMMNRA. Horseback riding constituted only 5% of all activities trail users engaged in during their visit, falling to 3.4% as the principal undertaken by respondents. However, the activity that was least often selected by respondents as something they intended to do during their visit was painting and crafts. This result is somewhat surprising given that the Santa Monica Mountains are renowned for their impressive scenic vistas and for the unusual quality of the natural light. Another relatively infrequently undertaken activity, which was also surprising, was wading and swimming. However, this was perhaps due to two factors. First, the majority of the trailheads surveyed did not have permanent water features. Second, it is possible that many respondents were unaware that beaches adjoining the National Recreation Area are located within State Parks and thus are technically part of the SMMNRA.

[9] It should be noted here that these figures add up to greater than 100% as respondents checked all applicable categories.

Table 6 User activities

Qu. 2a: Activities engaged in during visit			
Activity (N=912)	*%*	*Activity*	*%*
Sightseeing	55.0	Horseback riding	5.0
Hiking	77.3	Rock climbing	8.1
Picnicking	16.1	Painting / crafts	1.6
Mountain biking	26.3	Photographing	13.2
Bird watching	16.0	Sunbathing	5.5
Walking dog(s)	14.9	Wading swimming	4.7
Jogging	21.9	Other	7.8
Camping	8.6		

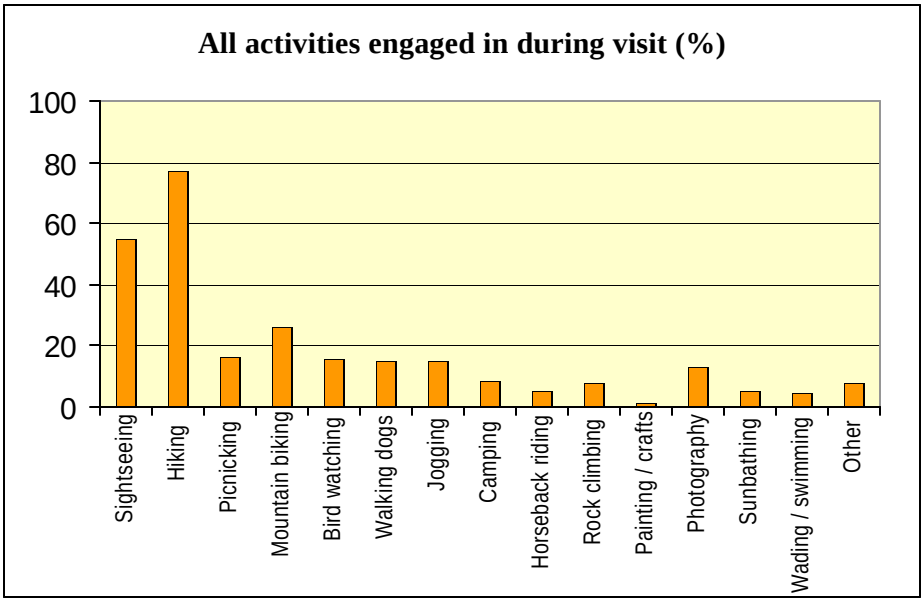

Figure 8 Visitor activities

With regard to the principal engaged in by visitors to the Santa Monica Mountains hiking was the most frequently selected (49%), with almost half of the respondents listing it as their primary intended activity. Almost a fifth of respondents listed mountain biking as their principal and the next most popular was jogging, with almost 10% of trail users listing it as their principal (refer to ***Table 7*** and ***Figure 9*** below). Activities such as sightseeing, dog walking, horse back riding and picnicking comprised a much smaller proportion of recreational trail use.

Table 7 Principal activities

Qu. 2b: Principal activity during visit	
Activity (N=888)	*%*
Hiking	49.5
Mountain biking	18.7
Jogging	8.2
Sightseeing	6.1
Dog walking	4.7
Horseback riding	3.4
Picnicking	2.8
Total	**92.3**

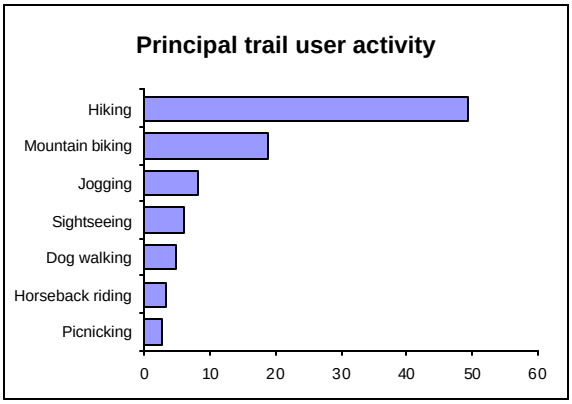

Figure 9 Principal activities

Reason for visit to the SMMNRA

The foremost reason given by respondents to the survey for their visit to the SMMNRA was to be outdoors, with 88.3% of respondents selecting this option (refer to ***Table 8*** and ***Figure 10*** below) Exercising was the next most popular reason followed by enjoying the scenic beauty, breathing fresh air and enjoying the quiet. Very few trail users stated that they were in the National Recreation Area to attend an organized event (only 5.5%) but the option that was least often selected was undertaking school research (0.5%). However, this is quite understandable as the survey was conducted during school holidays and was restricted to visitors 18 years of age and older. Options that received a moderate response rate were related to seeking solitude including: escaping the city, communing with nature and experiencing fewer people. Other popular reasons were related to encountering the flora and fauna of the SMMNRA: experiencing wildlife (47.1%) and seeing wildflowers (37.5%). The exception to this pattern was the option socializing with family and friends, which received a 36.1% selection rate. Relatively few respondents indicated that their reason for visiting the SMMNRA was to engage in adventure sports, be with companion animals or educate children about nature.

Table 8 Reason for visit

Qu. 3: Reason for visiting the SMMNRA	
Reason (N=912)	*%*
To exercise	84.5
To be outdoors	88.3
To enjoy the quiet	66.1
To breathe fresh air	73.4
To see wildflowers	37.5
To see / hear wildlife	47.1
To enjoy scenic beauty	73.8
To escape the city / suburbs	54.1
To commune with nature	51.0
To experience fewer people	40.1
To attend and organized event	5.5
To undertake school research	0.5
To engage in adventure sports	18.2
To be with companion animals	13.8
To socialize with family / friends	36.1
To educate children about nature	7.8
Other	2.5

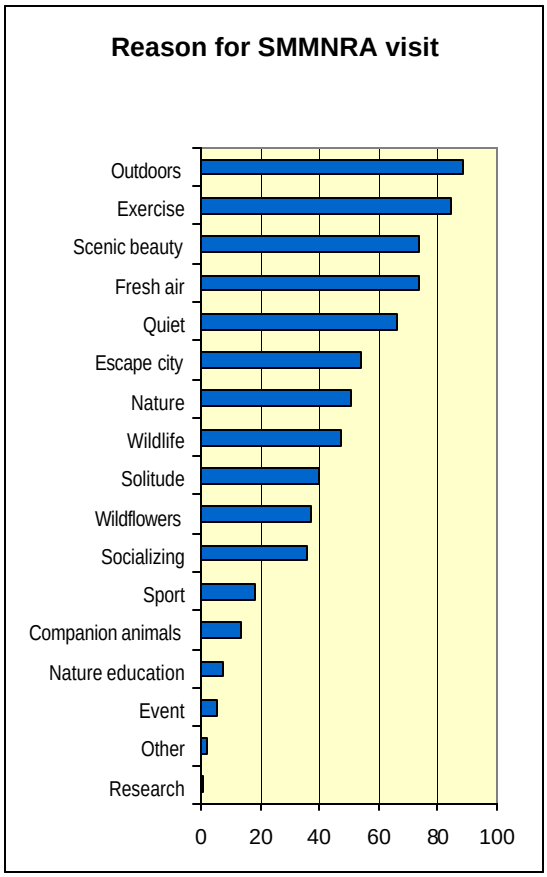

Figure 10 SMMNRA visit reasons

Local park use

When the sample is analyzed using a combination of responses to questions pertaining to regular trail use, the use of local or neighborhood parks, and travel time to the SMMNRA, a portrait of localized use of the National Recreation Area emerges. Most respondents (71.1%) stated that the trail at which they were surveyed was the trail they normally visited, although the majority of respondents (72.7%) also visited other trails within the SMMNRA. The reasons most often given for visiting a local park instead of the SMMNRA were limited time (48.8%), easier access (33.7%) and different recreation opportunities (26.5%). It is interesting to note that 12.2% of respondents stated that either the question was not applicable to them or they did not use local parks, as the SMMNRA fulfills this recreational function (see ***Figure 11*** below). Furthermore, the median travel time to the National Recreation Area was only 20 minutes, highlighting the residential proximity of trail users. An examination of user activities on the trails provides further insights into recreational patterns within the SMMNRA.

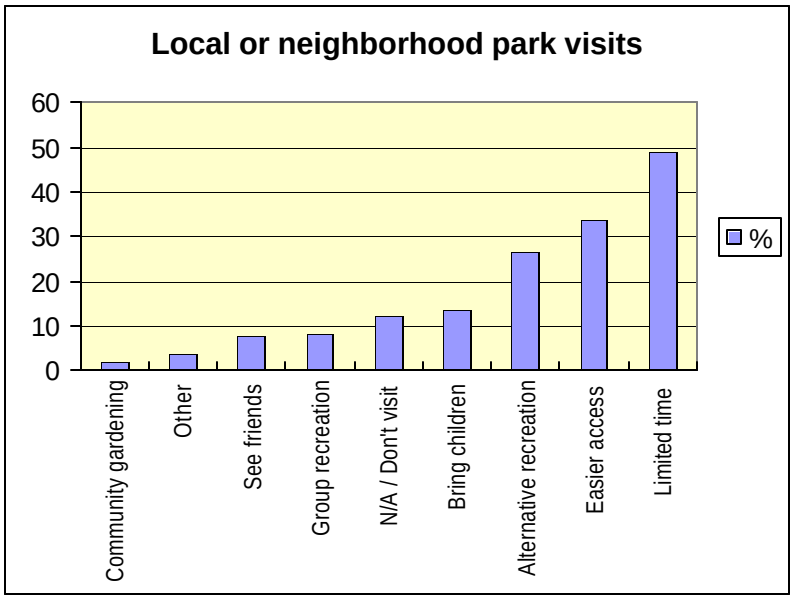

Figure 11 Local/neighborhood park use

User group analysis

The user groups with the highest percentage of regular and localized trail users were joggers (91.2%) and equestrians (90%) followed closely by dog walkers (88%) then mountain bikers (76.9%). Users who returned to specific trailheads relatively infrequently were predominantly picnickers (47.6%), reflecting the periodic nature of this activity. On the other hand, those users who were more nomadic, tending to visit alternative trails more often, were predominantly sightseers (66.7%) and hikers (63.3%). These patterns are supported by statistics for frequency of visit to the SMMNRA. Equestrians were the most frequent visitors, with on average almost 13 visits per month, followed by dog walkers (11.3), and joggers (10.2). Picnickers were the least likely to visit the SMMNRA on a regular basis with on average only two visits per month, whilst mountain bikers, hikers and sightseers made between 4 and 7 visits per month to the SMMNRA.

Seasonality

User groups also exhibited seasonal trends in use of the National Recreation Area. Although the survey results surprisingly indicate that all user groups favored summer, sightseers and dog walkers also strongly favored the spring. The most frequent summer users were equestrians (93.3%) followed by joggers (90.4%) with the least frequent summer visitors being sightseers (46.3%). The most frequent visitors to the SMMNRA during the fall were also equestrians (90.0%) who similarly dominated other groups for the winter (83.3%) and spring (90%), though clearly equestrians favored winter the least in terms of their seasonal use. The next most frequent fall users were joggers (75.3%) followed by dog walkers (73.8%). Picnickers were the least frequent visitors in the fall at only 12%, with their usage rates predictably declining even further in the winter to just 8%. Visitation rates by sightseers were also low in the fall at only 22.2% rising

understandably in the spring with wildflower season, to 46.3%. The most frequent visitors in the winter were still equestrians, followed by joggers (74%) and dog walkers (71.4%) and during the spring after equestrians the next most frequent visitors were joggers (80%) and dog walkers (78.6%).[10]

Local park use

As far as local/neighborhood park use is concerned, equestrians were the group that most frequently reported never using a local park (30%). A high percentage of equestrians also reported that they would only visit their local park for different recreational opportunities (26.7%) or due to limited time (23.3%). Joggers and hikers also reported lower rates of local park use when compared to mountain bikers, sightseers, dog walkers and picnickers. The most frequently cited reason across all groups for visiting a local park instead of the National Recreation Area was limited time. This was followed by easier access, different recreational opportunities and the ease of bringing along children. The reasons given least often for visiting a local park were community gardening, seeing neighborhood friends and group recreation opportunities. Given the localized use of the National Recreation Area and the opportunities for group recreation that it presents, these results are unsurprising (refer to ***Appendix 2*** for full data).

Environmental Knowledge and Sources of Information

One of the unexpected findings of the survey was the considerable ecological awareness of visitors to the Santa Monica Mountains National Recreation Area. For instance, the most frequently cited source of information on plants and animals in the Santa Monica Mountains was nature observation (46.1%). This finding is emphasized by responses given to the question regarding the most important reason for protecting the Santa Monica Mountains, which revealed remarkably strong ecocentric attitudes among trail users.

Sources of knowledge

Visitors to the SMMNRA obtained their knowledge about the flora and fauna of the Santa Monica Mountains from a wide variety of sources (refer to ***Table 9*** below). However, one of the unexpected findings of the survey was the high percentage of visitors who derived their knowledge from personal experience. For instance, the most frequently listed source was nature observation (46.1%). This supports the emerging pattern of localized use and is strong corroborating evidence for ecocentric attitudes among park users. Other frequently cited sources of knowledge were books (40.4%) and

10 A cautionary note is appropriate here. Data pertaining to seasonal trends are partly an artifact of the timing of the survey. In holding the survey during the summer, there was a greater chance of sampling trail users who favor the summer months. Earlier surveys for the SMMNRA together with National Park Service visitor entrance numbers for the SMMNRA should be used in conjunction with data from the current survey when planning for periods of peak trail use. Nevertheless, the survey does address a lacunae in previous sampling, which was predominantly undertaken during the spring and the fall.

magazines (28.2%). Prosaic information such as previous visits to the park (35.7%), information passed on by family and / or friends (33.0%) or knowledge gained from living in the area (30.6%) was also popular. It is interesting to note though that information sources provided within the SMMNRA itself were frequently selected by respondents as providing them with knowledge about nature in the SMMNRA. Examples include park signs (33.6%) and park brochures (32.0%). The media and formal education were less likely to be cited - television (21.4%) and school (19.8%). The sources of information that were least often listed were ranger led nature walks (9.8%), organized groups (6.7%), and the Internet (1.6%). However, it is important to note that with regard to the latter option, it was written in as a response by visitors because it was not provided as a choice within the survey. This makes it a particularly noteworthy response.

Table 9 Sources of nature knowledge

Qu. 7: Source of knowledge of SMM fauna and flora			
Reason (N=912)	*%*	*Reason*	*%*
Ranger-led nature walks	9.8	Television	21.4
School	19.8	Previous visits	35.7
Park brochures	32.0	Family / friends	33.0
Park signs	33.6	Live in the area	30.6
Nature observation	46.1	Organized groups	6.7
Books	40.4	Internet	1.6
Magazines	28.2	Other	1.9

User group knowledge sources

A comparison of user group knowledge sources further underscores identifiable trends pertaining to the ecocentric attitudes of trail users. As can be see from Table 9 above, nature observation was the most frequently cited source of knowledge about plants and animals in the Santa Monica Mountains. This category was most often cited by dog walkers (52.4%), followed by equestrians and hikers (50%), then mountain bikers (42.8%; see ***Figure 12*** below). Books (40.7%) and magazines (28.6%) were also highly favored sources of information, particularly by equestrians (43.3%), joggers (42.3%) and hikers (41.0%). Park signs (34.2%) and brochures (33.1%) were similarly preferred information sources, particularly for mountain bikers and hikers, with equestrians preferring brochures over signs (refer to ***Appendix 3***). Ranger-led nature walks (9.6%) and school (19.8%) were the least utilized sources of information about the SMMNRA, understandably for joggers (1.4%) who are engaged in exercise and typically live in the area, but surprising for sightseers (1.9%) who one might have expected to be more dependent upon local sources of information and guided tours. This could be an indication of awareness about the availability of such information.

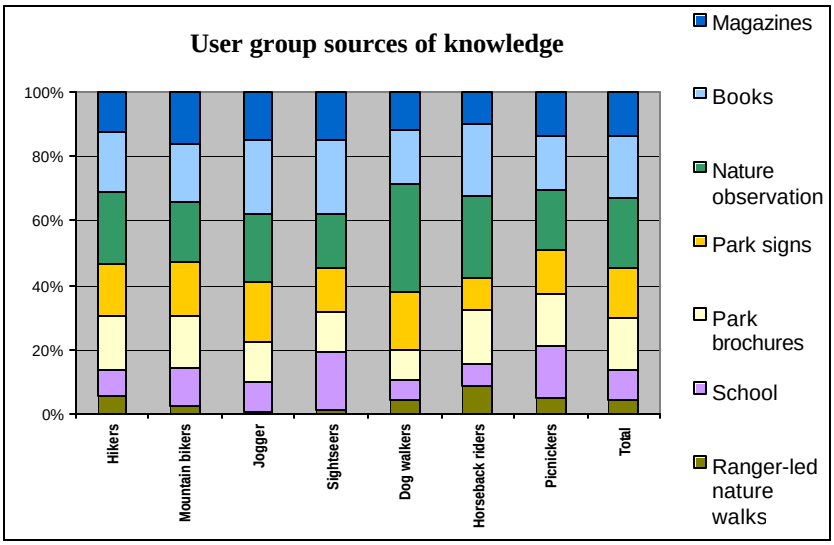

Figure 12 User group information sources

Reasons for protecting the Santa Monica Mountains

One of the key findings of the survey has been the significant ecological awareness of visitors to the SMMNRA. A strong ecocentric ethic is reflected in responses to the question pertaining to protection of the Santa Monica Mountains (refer to ***Table 10*** and ***Figure 13*** below). A majority of visitors (53.2%) stated that providing habitat for plants and animals was the most important reason. When combined with those visitors who were unable to choose between conservation and recreation (21.6%), strongly positive attitudes towards nature are clearly dominant among park users. Only 22% of park visitors listed recreation as being the single most important reason to protect the Santa Monica Mountains. Perhaps even more surprising, and underscoring the intensity of these attitudes, is the fact only 2% of visitors stated that they had no opinion with regard to protecting the mountains.

Table 10 Protection of SMMNRA

Qu. 8: Reason to protect Santa Monica Mountains*	
Reason (N=912)	*%*
To provide recreational opportunities	22.0
To provide habitat for plants and animals	53.2
Both	21.6
No opinion	2.0
Other	0.5
Total	99.3

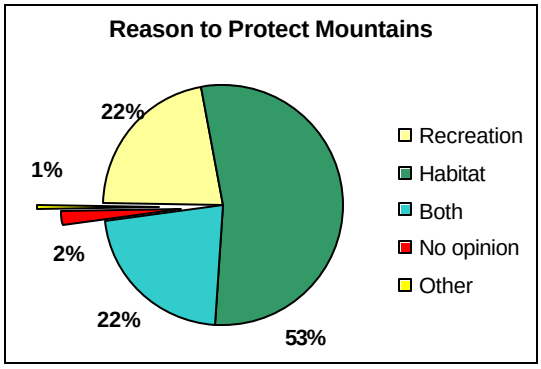

Figure 13 Reasons for protection

User group attitudes

An analysis of data by user group highlights these ecocentric attitudes (see ***Figure 14***). Providing habitat for plants and animals was given as the most important reason to protect the Santa Monica Mountains. Exactly 63% of sightseers, 58% hikers and 57.5% of joggers cited habitat preservation as the principal reason to protect the Santa Monica Mountains. These user groups were clearly the most ecocentric of all surveyed trail users within the SMMNRA, although picnickers also exhibited strong ecocentric attitudes with 52% citing habitat protection. Only 36% of equestrians favored habitat protection alone, followed by 42.8% of mountain bikers. The user groups that most supported recreation as the reason for protecting the Santa Monica Mountains were dog walkers, equestrians and mountain bikers (33% respectively), then picnickers (28%) and joggers (20.5%). However, equestrians were most likely to choose both reasons (30%), followed by mountain bikers (22.3%) and hikers and joggers (20%). Sightseers (5.6%) and dog walkers (4.8%) were the user groups with members who tended towards responding that they did not have an opinion on the matter, but the percentages were comparatively quite low.

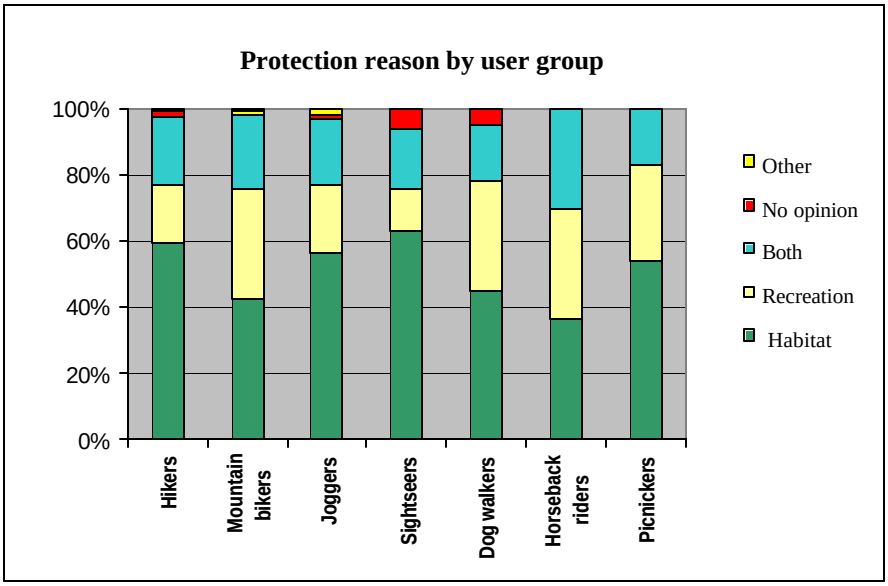

Figure 14 User groups reasons for protection

An issue addressed in the next section, but one that is of some relevance here, is that over a third of respondents reported that trail users damaging plants (18.9%) or frightening wildlife (17.8%) were problems within the SMMNRA. This further highlights the concern of trail users within the SMMNRA for the natural environment. Given that ecocentric attitudes are so prevalent among certain trail users, it is possible that this could account for some of the conflict that occurs on the trails. Certainly, as discussed in ***section 2*** of the report, the literature on leisure research and recreation studies supports this assertion.

User Group Interaction Patterns

One of the important tasks of this survey was ascertaining whether or not there was conflict among users on multiple use trails within the SMMNRA, and attempting to quantify the extent of that conflict. The survey addressed this issue by asking respondents if the activities of other users impacted upon their park experience. If the answer was affirmative, respondents were then asked to rate the degree of the impact on a scale ranging from 1 to 5 with 5 being strongly positive and 1 being strongly negative. For those respondents who found other trail users' activities to negatively impact on their recreational experiences whilst visiting the SMMNRA, they were asked to list the activities that caused them discomfort.

Impact of other trail users

Overall, a majority of respondents (77%) reported being impacted by other trail users, but this information in itself does not reveal much about user conflict, as the structure of the survey questions pertaining to this issue meant that the impact could be either positive or negative. However, where members of particular user groups stated that they were negatively impacted by other users, they were asked to specify the source of the impact and the group responsible. We have compared the problems identified by trail users overall, and not surprisingly there are patterns that emerge from the data. Of course, many of these would appear to be commonsense (e.g. hikers identifying animal wastes as a nuisance, and dog walkers and equestrians as the groups responsible.) Also unsurprisingly, user groups often rated members of their own group more favorably than those of other groups. We have controlled for this by providing an exclusive mean when comparing across groups, to ensure that this potential source of bias is ameliorated (see ***Table 11***).

Degree of impact

All survey groups generally reported either a favorable or at worst slightly below a neutral response to other trail users (refer to ***Table 11***). However, mountain biking, picnicking and dog walking received a comparatively worse rating than other users. When the exclusive mean is taken into account (e.g. the rating by a user of their own group is deprecated) these results are even more accentuated. Mountain biking is clearly the activity that has attracted the least positive review from other users, receiving a slightly negative rating.

Table 11 Impact of activities upon other users

Category	*N*	*Mean*	*Exclusive mean*	*Key*
Mountain biking	677	3.25	2.93	
Horseback riding	660	4.47	3.41	***5 = Strongly positive***
Hiking	688	4.50	4.41	***4 = Somewhat positive***
Running / jogging	674	4.26	4.21	***3 = Neither positive or negative***
Picnicking	671	3.93	3.92	***2 = Somewhat negative***
Dog walking	678	3.42	3.38	***1 = strongly negative***
Other	79	2.18		

From ***Figure 15*** below, it is evident that equestrians were also less favorably perceived by other users once their self appraisals had been controlled for in the data. Indeed, there was the greatest difference between the mean and the exclusive mean for equestrians. However, equestrians still received a neutral to somewhat positive rating overall.

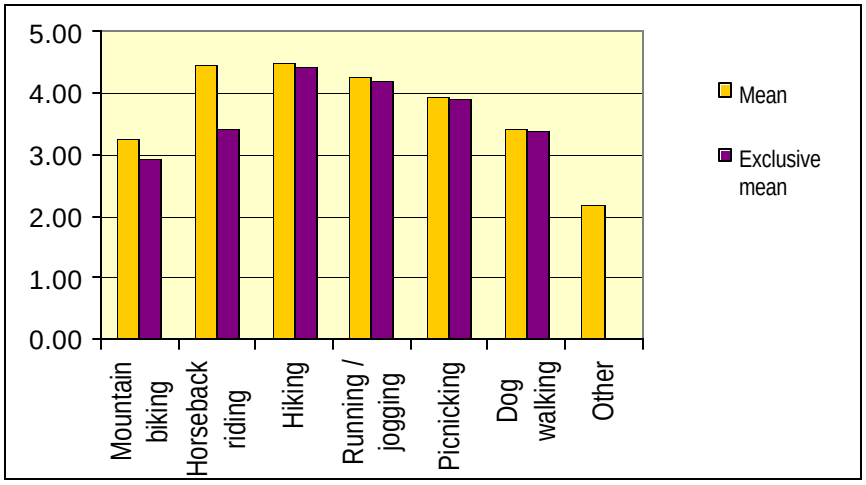

Figure 15 Impact of activities on other users

It is possible to develop a clearer picture of the feelings of trail user groups for other trail users, in terms of their impact upon the recreation experience, by calculating how the overall mean rating of user groups varies from the neutral score of 3. Thus, if a score of 3 represents a neutral rating, by subtracting 3 from the mean rating score, a clearer representation of trail users attitudes towards specific user groups emerges (refer to ***Figure 16*** below). As can be see from the diagram below, mountain bikers were perceived slightly negatively compared to dog walkers and equestrians who were received somewhat positively. Hikers were the most favorably perceived of all user groups, followed by runners/joggers and then picnickers.

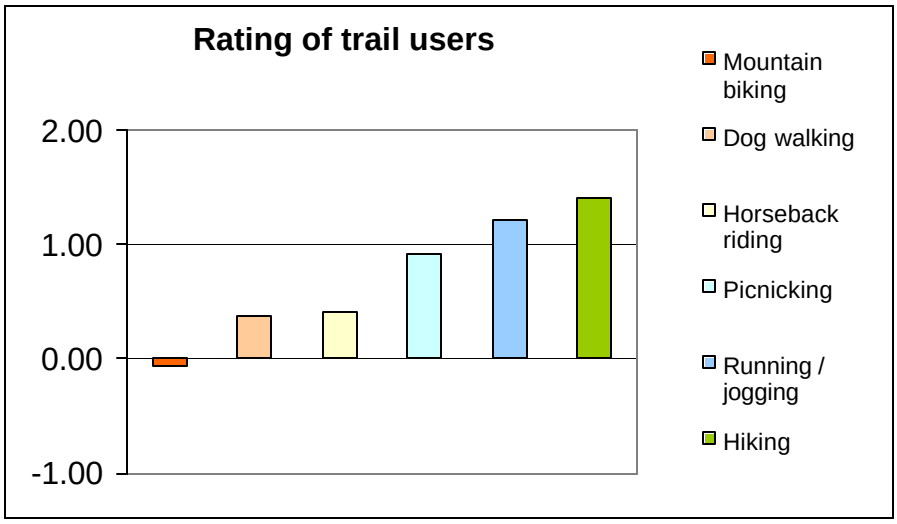

Figure 16 Trail users rating of other user groups

Problem activities

There was no single problem activity reported by respondents that stood out over others (refer to ***Table 12*** and ***Figure 17*** below). The most frequently reported issue was uncooperative behavior, with almost 30% of respondents selecting this category. This was followed by animal wastes, litter, startling people, potential collisions / injury, damaging plants, frightening wildlife, and making too much noise. The problems that drew the least attention were scaring horses and dogs being off leash (1.6%).[11] It is obvious from the results that there is a substantial difference between dogs being off leash or users scaring horses, compared to the other problems. These two issues might be considered more as nuisance factors than the other problems, which clearly require further attention.

The high degree of responses to the other categories suggests that uncooperative behavior together with animal wastes, litter, noise, the risk of injury and users harming the environment are matters warranting greater scrutiny in trail management planning. One possible solution might be to post a code of conduct or code of ethics at the trailheads, advising users to be considerate of other people visiting the National Recreation Area, and to act responsibly by keeping their noise levels down, appreciating that it is a habitat area that requires special care so as not to harm plants and animals, and by looking out for other users. There might also be a need for more trash receptacles and animal waste bags on the trails.

[11] It should be noted that since respondents were able to selected more than one category, percentages will add up to over 100.

Table 12 Problem activities

Reason (N=912)	*%*
Dogs off leash	1.6
Other	3.6
Scare horses	5.9
Make too much noise	15.4
Frighten wildlife	17.8
Damage plants	18.9
Potential collisions / injury	19.4
Startle people	20.5
Litter	21.3
Leave animal wastes	24.6
Uncooperative behavior	27.1

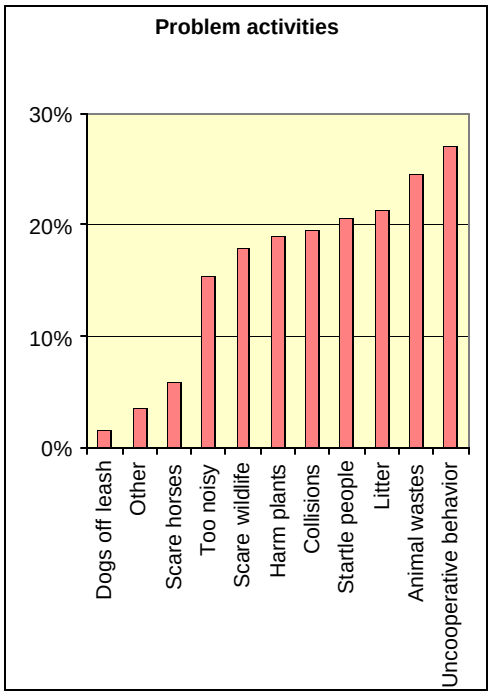

Figure 17 Problem activities

Conflict comparisons by user group

Respondents who answered 'yes' to question 9a about conflict with other users were asked supplementary questions to determine the nature of user conflict in the SMMNRA. The second supplementary question, asked respondents to rate the impact of other users and was discussed above. The third supplementary question on this section of the survey asked respondents to select from a list of reasons the category that best described the problem caused by other users.

Although there were a broad variety of answers to this question, it was apparent that respondents to the survey attributed certain problems to particular groups. While some trail users were regarded as being relatively innocuous, others were identified as being a source of conflict. In the following section, a series of diagrams are presented as a means of graphically representing which trail user group was seen as being a source of conflict, the problem that was attributed to that group, and the trail users who cited this activity and group as being problematic.

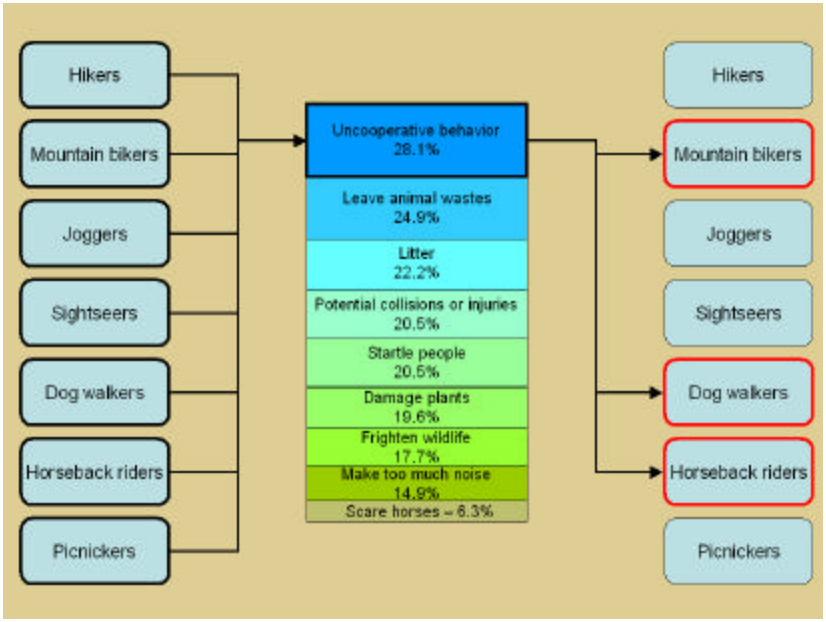

Figure 17a Uncooperative behavior and groups responsible

Thus, from ***Figure 17a***, it can be seen that uncooperative behavior was identified as a problem by all trail users, but the groups identified as being responsible were mountain bikers, dog walkers and equestrians.

Animal wastes were seen as a problem by hikers, mountain bikers, joggers, sightseers and picnickers and unsurprisingly this issue was attributed to dog walkers and equestrians ***Figure 17b***.

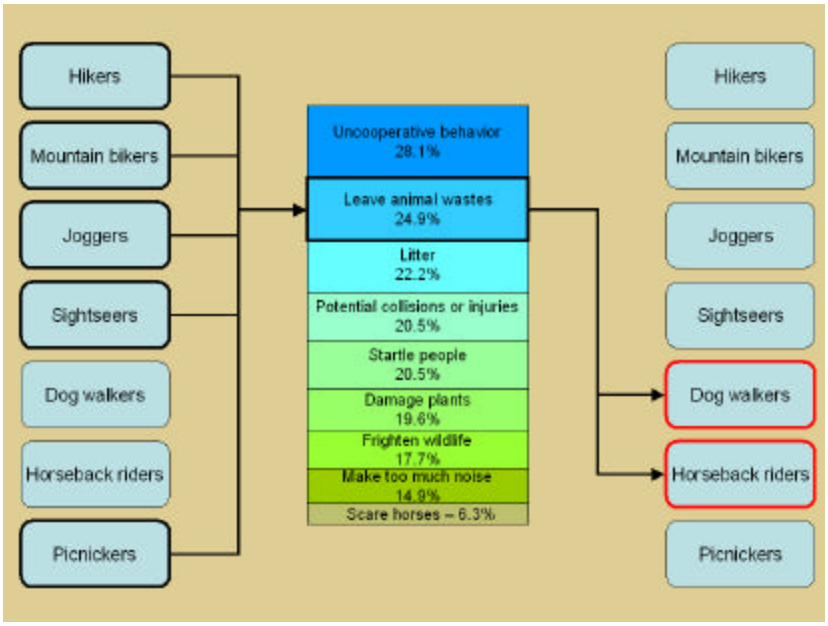

Figure 17b Animal wastes and the groups responsible

Litter (***Figure 17c***) emerged as the problem most often attributed to dog walkers and picnickers. The groups affected by this were hikers and sightseers

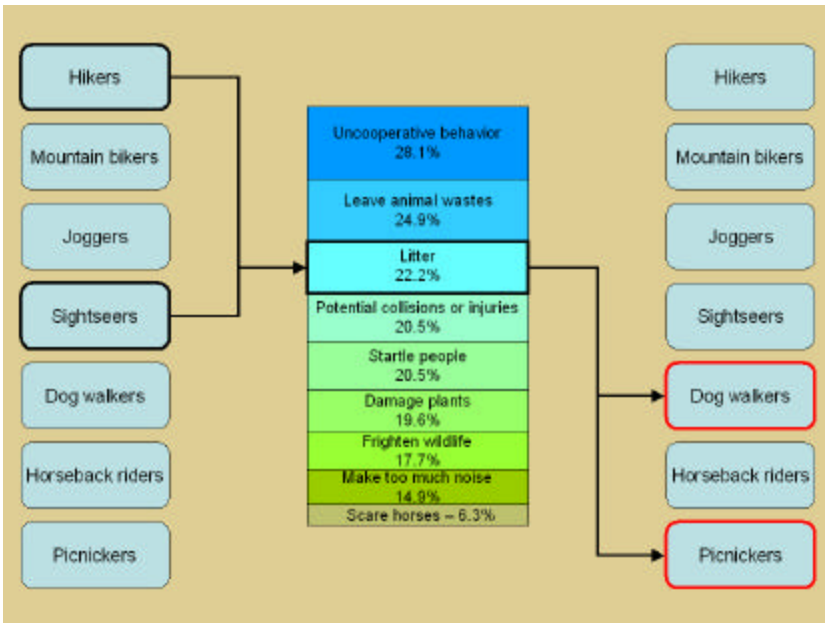

Figure 17c Litter and the groups responsible

Again unsurprisingly, hikers, sightseers and equestrians attributed the potential for collisions and injury to equestrians and mountain bikers. Equestrians identified potential collisions with mountain bikers as problematic, but mountain-bikers did not list collisions with equestrians as a problem (***Figure 17d***).

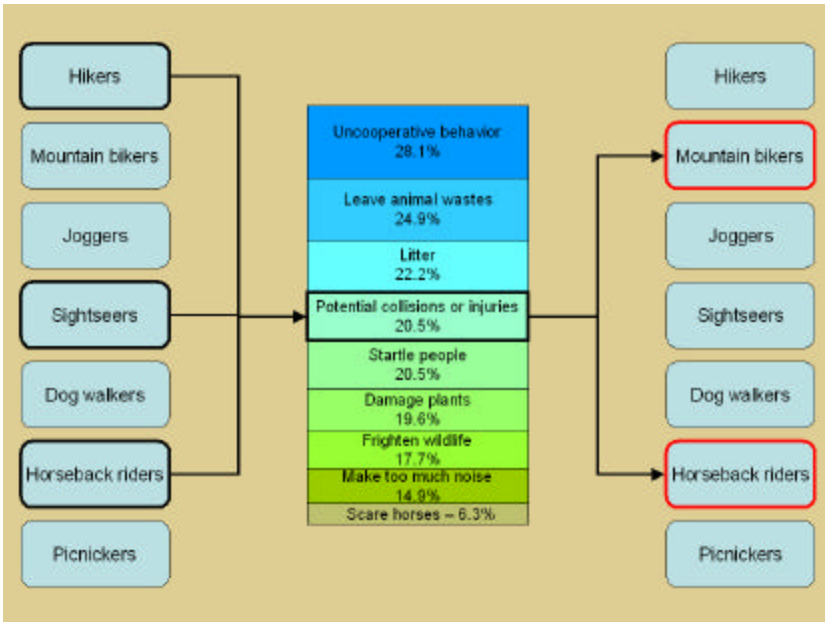

Figure 17d Potential collisions and the groups responsible

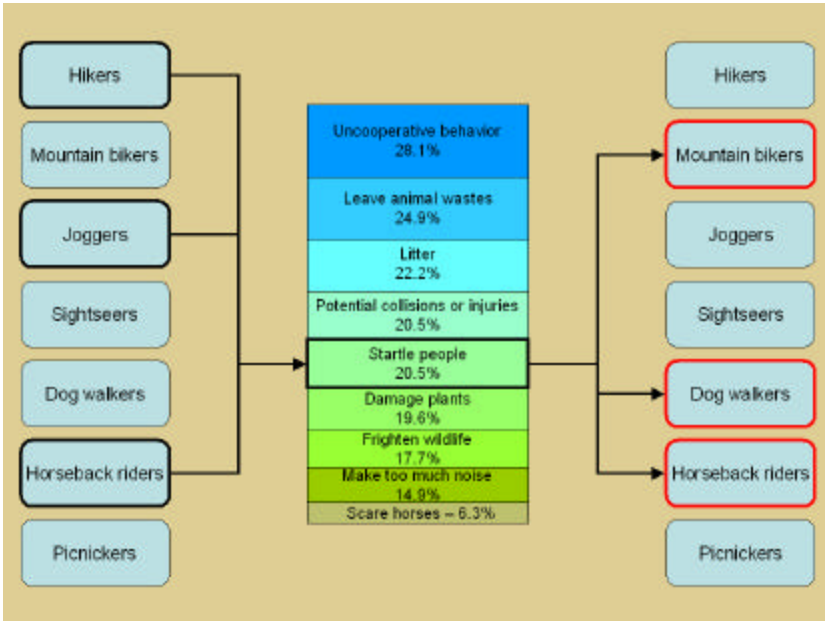

Figure 17e Startling people and the groups responsible

Equestrians, joggers and hikers were the groups most concerned about being startled on the trails. They identified the source of the problem as dog walkers, equestrians and mountain bikers, with equestrians being concerned about dog walkers (***Figure 17e***).

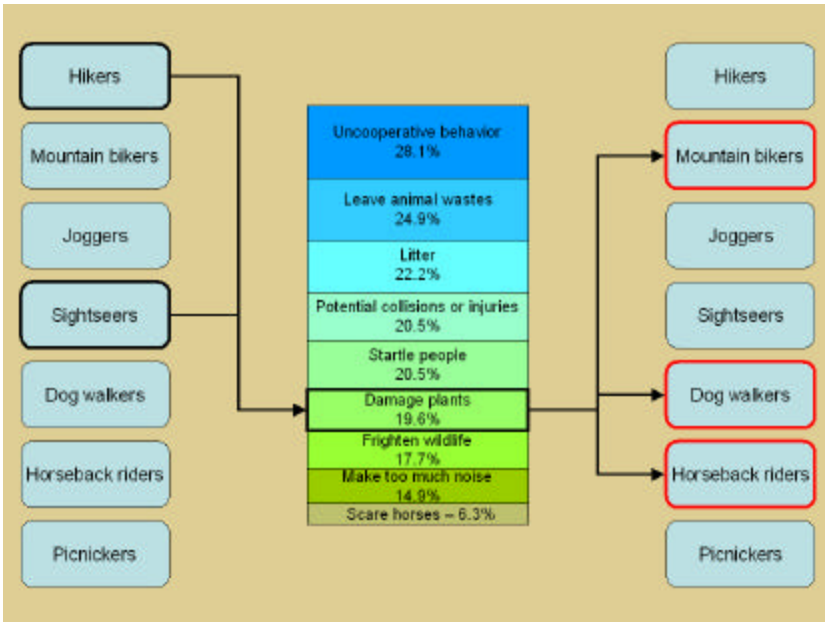

Figure 17f Damaging plants and the groups responsible

Concerns about damage to plants were expressed by hikers and sightseers. They saw equestrians, dog walkers and mountain bikers as the user groups responsible for this damage (***Figure 17f***).

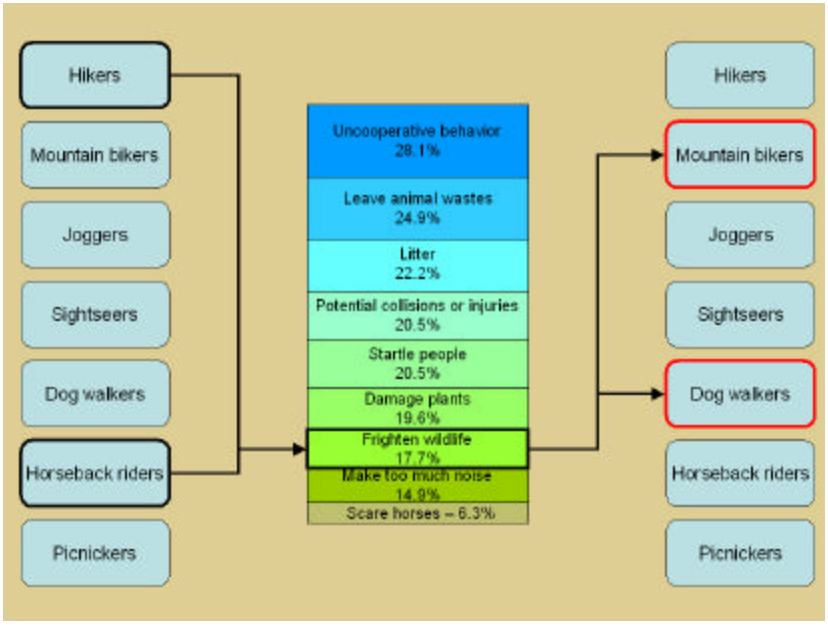

Figure 17g Frightening wildlife and the groups responsible

Hikers and sightseers also expressed concerned about noise levels on the trails. They felt that all other trail users except themselves were responsible for this problem (***Figure 17g***).

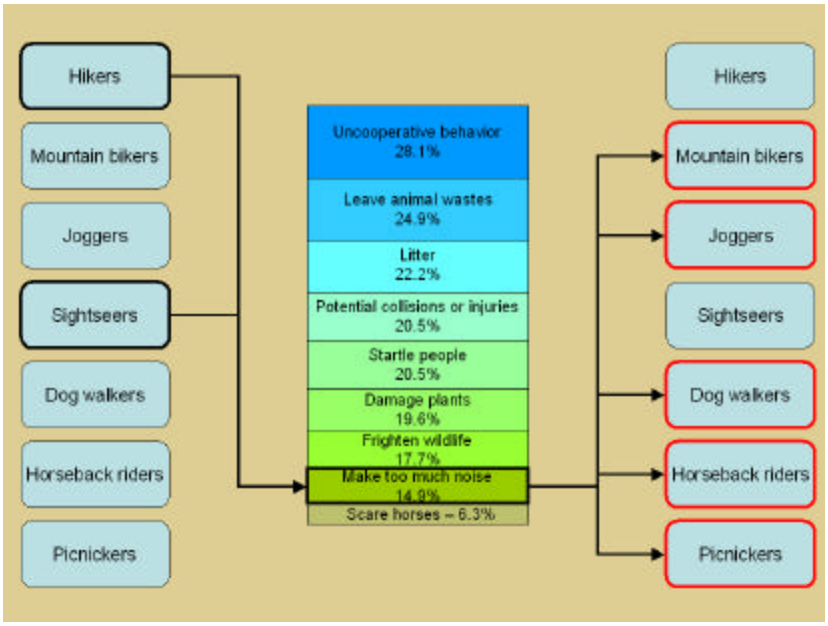

Figure 17h Making noise and the groups responsible

Equestrians and hikers were the groups most concerned about wildlife being startled on the trails. They attributed this issue to mountain bikers and dog walkers (***Figure 17h***).

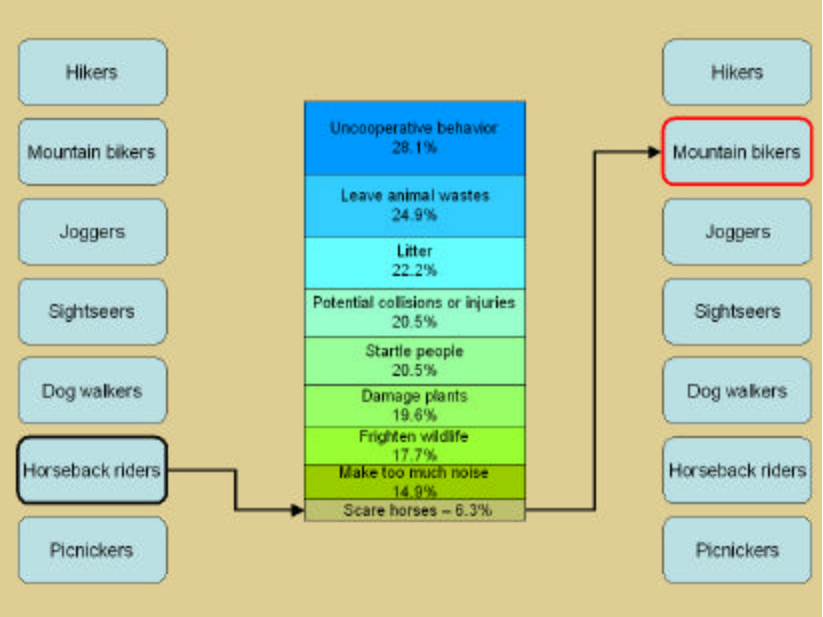

Figure 17i Scaring horses and the groups responsible

Finally and perhaps not surprisingly, equestrians were also the group most concerned about horses being startled on the trails. They identified mountain bikers as their biggest cause for concern in this regard (***Figure 17i***).

Mode of Transit and Barriers to Access

The results of the 2000 Transportation Survey for the SMMNRA highlighted the automobile dependence of park users. That survey found that 93% of visitors traveled to the National Recreation Area by private automobile (ORCA Consulting, 2000, p.2:6). Although the results from that survey do note that 1% visitors arrived by 'bus', this mode of transit was qualified as being comprised of either transit or tour busses. The results of the 2002 recreational trail use survey reinforce earlier findings. Nevertheless, and somewhat encouragingly, this survey has found that a greater percentage, cumulatively 9.8% of visitors, came by alternative transport modes (walking, bicycling, jogging or on horseback) than was reported in the 2000 transportation survey. Whether or not this reflects a change in travel mode is a moot point. It does however, show that alternative travel modes are feasible within the SMMNRA and that there is potential to decrease car dependence. Despite these results, it is very clear that public transit is either eschewed by visitors to the SMMNRA or more likely is not a convenient travel mode – due to poor accessibility or infrequent timetables.

Mode of transit

It is unsurprising that in a city as auto-dependent as Los Angeles, 89.8% of respondents to the survey traveled to the SMMNRA via private automobile. The next highest category was walking or jogging at a meager 4.8% of respondents. Even less represented were those who came by bicycle, on horseback, or by motorcycle. There were no respondents who used public transport to access the National Recreation Area (refer to ***Table 13*** and ***Figure 18*** below). This could indeed be regarded as constituting a barrier to access, perhaps accounting to some degree for the under-representation of particular socio-economic groups in the survey sample.

Table 13 Travel mode

Travel Mode *(N=912)*	*%*
Public transportation	0.0
Group transportation (club or organization)	0.1
Other	0.3
Motorcycle / scooter	0.4
Horseback	1.0
Bicycle	3.6
Walk / jog	4.8
Car / truck / SUV / van	89.8
Total	100

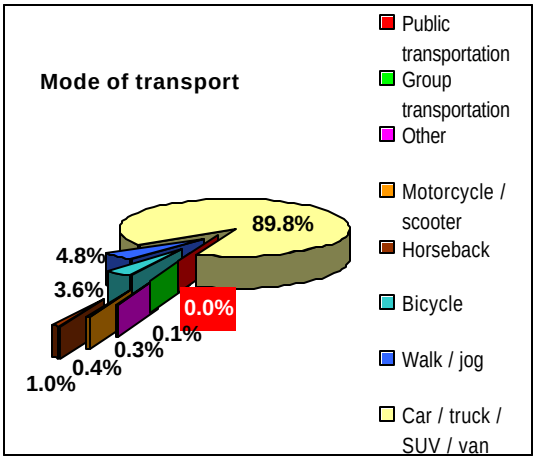

Figure 18 Mode of transit

Barriers to access

Responses to survey questions pertaining to barriers to access and disability were disappointingly somewhat uninformative. The position and sequence of questions pertaining to barriers to access within the survey, together with the wording of the actual questions, may have contributed to respondents' poor understanding of these questions, and hence the dearth of information on barriers.

Disability

Only 2% of respondents reported having a disability of some kind. Furthermore, a very small percentage (4.5%) reported experiencing barriers to access at the trailhead where the survey was undertaken or at other trailheads within the SMMNRA (8.9%) although this latter category is worthy of attention with almost 10% of respondents reporting a barrier to access. This is an issue that certainly merits further investigation.

Future Growth Projections

Projections for park user growth rates have been determined through an analysis of residential zip code data derived from the survey. These data were aggregated into

Southern California Association of Governments (SCAG) designated cities, where there were 5 or more respondents for a particular zip code. Where this threshold was not met, zip codes were aggregated at the county level. The proportion of residents from each zip code was assumed to remain constant. SCAG growth projections for each city were then scaled by the proportion of SMMNRA visitors residing in the city. For those zip codes aggregated at the county level, SCAG county growth projections were scaled accordingly.

It is important to note that SCAG provides no base for its year 2010, 2015, 2020 and 2025 growth projections. Year 2000 US Census numbers were used to generate a base number from which percentage increases could be calculated.

From these calculations, it can be seen that visitor growth projections for the Santa Monica Mountains National Recreation Area closely resemble growth projections for Los Angeles County (refer to ***Table 14*** below). This is understandable because many of the visitors surveyed resided in zip codes within Los Angeles County.

Table 14 Growth projections

County	2010	2015	2020	2025
Ventura County	111 %	116 %	121 %	126 %
Los Angeles County	113 %	118 %	124 %	130 %
SMMNRA Visitor Growth	114 %	119 %	124 %	129 %